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The Root Cause of Post-traumatic and Developmental Stress Disorder, Phase II

PRINCIPAL INVESTIGATOR:  
Keith A. Young, PhD

CONTRACTING ORGANIZATION:  
Texas A&M Health Science Center  
Temple Texas 76504

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14. ABSTRACT  Our overarching scientific hypothesis holds that serotonergic influences on brain development driven by genetics and early experience induce a variation of normal brain anatomy that makes the brain highly susceptible to the effects of severe stress. We are studying this question using both clinical and basic approaches. New findings from our lab funded by VA support the existence of an anatomical phenotype conferring susceptibility to depression, and the current work seeks to extend these findings to PTSD. After TATRC review in January of 2011, a revised research plan was developed to include a pre/post-deployment study at Fort Hood and anatomical studies of PTSD in collaboration with NIMH, Yale and USUHS. The revised budget was resubmitted in February and we are awaiting release of funds from contracting to begin the work, which in year 1 of this budget includes work on PTSD bioinformatics.					
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## INTRODUCTION:

Our overarching scientific hypothesis holds that serotonergic influences on brain development driven by genetics and early experience induce a variation of normal brain anatomy that makes the brain highly susceptible to the effects of severe stress. The new goal of Project 1 is to describe the progression of post-deployment stress disorders (PTSD, major depression, suicidality) in active duty troops using predeployment/postdeployment structured clinical interviews, and to investigate developmental and environmental factors that influence predisposition to PTSD and depression. A subset of participants will be selected to have predeployment/postdeployment MRI and psychophysiological analysis. Using DNA gathered from clinical trials, we will investigate genetic factors influencing resiliency and susceptibility to stress disorders using a panel of 20 genes that we have tested and validated. Project 2 will investigate post-mortem anatomy in subjects with major depression and/or PTSD. Both molecular and histological techniques will be employed to study the brains already collected. An overarching goal of the Program is integration of data across the projects to compare and contrast the potential for different assessment paradigms (MRI anatomy, fMRI, evoked potentials, startle, genetic profiling) to screen for resiliency and predisposition to post-traumatic and developmental stress disorder stress disorders.

BODY:

KEY RESEARCH ACCOMPLISHMENTS:

Administrative:

Approval to move forward with the redesigned Project 1 was received from TATRC and MOMRP in January, 2012 and the redesigned budget was resubmitted. In October, a second rebudget was requested from contracting. We are currently awaiting release of funding to begin the work on PTSD bioinformatics. The IRB for Project 1 was submitted to BAMC in February, 2012.

This project will start in earnest in June 2013, when funding ends for Phase 1 of the project.

REPORTABLE OUTCOMES: None

CONCLUSION: No scientific conclusions have been made at this point in time.

APPENDICES: None.